Comparative Analysis of Health Care Systems in Three Developed Countries: Germany, Sweden and the United States

Kwangho Jung*

Abstract: There is a growing interest in the comparison of international health care data with the hope that such studies will enable individual systems to learn from other systems. There are, however, few rigorous comparative studies of health care systems. There is little evidence to suggest which model is to be preferred in what circumstances. This paper attempts to compare health care systems in three developed countries, including Germany, Sweden and the United States in terms of access, cost and quality. This paper suggests potential policies for population health in developed countries. They include universal health care coverage, the reduction of poverty and income inequality and the reallocation from health care expenditures to non-health care expenditures.

INTRODUCTION

International comparison of health care provisions can offer valuable tools to policymakers who wish to evaluate the performance of their own systems. Comparison of different countries' health care systems will aid governments in identifying elements of their systems that could be improved. In recent years, many developed countries have attempted to reform their health care systems in order to improve the performance of health care systems in terms of efficiency and equity (OECD, 1992; 1994; Alterstetter and Jjorkman, 1997). However, there is little evidence to suggest which model is to be preferred in what circumstances. There are few rigorous comparative studies of health care systems.

This paper compares the entrepreneurial market-oriented health care system of the US with the welfare-oriented health systems of Germany and Sweden. First, this paper reviews previous studies about comparative health care systems and discusses characteristics of health care systems in OECD countries, especially in regard to two different approaches: market competition (demand side approach) and government intervention (supply side approach). Next, this paper discusses how health care systems in the country are related to policy issues such as cost, access, and quality. Third, the paper will evaluate the three different health care systems in terms of efficiency and equity. Finally, while evaluating strengths and weaknesses of different health care provisions of both countries, this paper suggests public policies for population health.

COMPARING HEALTH CARE PROVISION IN THREE DEVELOPED COUNTRIES

Overview: Types of Health Care Systems

Previous studies have developed various classifications of health systems. For instance, Terris (1978) suggested three basic systems of medical care: First, public assistance systems supported by general tax revenues; second, health insurance systems that rely on public and private third-party mechanisms to cover the population for fee-for-

* Department of Public Administration, Kookmin University 861-1 Chongnung-dong, Songbukgu, Korea 136-702

service medicine; third, national health service systems that cover the entire population by means of salaried health care providers working in public facilities. Field (1980) proposed five types of systems: atomic, pluralistic, insurance/social security, national health service, and socialized. Roemer (1993) suggested that the national health care systems be categorized into four main types that range from the least market intervention to the most: 1) entrepreneurial; 2) welfare oriented; 3) comprehensive; and 4) socialist.

The health care systems suggested by previous studies can be divided into two approaches: market and non-market approaches (see Figure 1). The US health care system is a market-oriented competitive system with a great variety of contracts and financial incentives (i.e., managed competition). Both Germany and Sweden are welfare-oriented system with mandatory comprehensive coverage. While the former sickness fund system (i.e., social insurance system) developed in the era of Bismarckian, the latter is a tax-financed national

← Demand Side Approach
Market Forces Increased
Health Care as a Commodity
Out of pocket (Private Insurance: Voluntary)

→ Supply Side Approach
Government Intervention Increased
Health Care as a Right
(Social Insurance: Mandatory: Taxation)

	Type 1 **Private** (Financed by individual out-of-pocket money)	Type 2 **Pluralistic** (Financed by private insurance premiums)	Type 3 **Social Insurance System** (Financed by mandatory payroll premiums)	Type 4 **Comprehensive National Health Service** (Financed by general taxation)	Type 5 **Socialized**
General definition of health care	Commodity of personal consumption	A consumer good or service	An insured/ guaranteed consumer good or service	A state supported consumer good or service	A state provided public good or service
Position of the physicians	Sole entrepreneur	Sole entrepreneur and member of variety of groups	Sole entrepreneur and member of medical organizations	Sole entrepreneur, medical organizations, and state employee	State employee and member of medical organization
Power of medical professional associations	Powerful	Very strong	Strong	Fairly strong	Weak or non-existent
Ownership of facility	Private	Private and public	Private and Public	Mostly public	Entirely public
Prototypes	USA Medical saving account (MSA) ; Employer based provided Insurance (EBPI)	USA MSA; EBPI; Medicare and Medicaid	Germany France Canada Japan.	Sweden - decentralize systems (county council); UK (nationally centralized system: NIH); Greece, Ireland, Spain.	Soviet Russia

Note: Some countries have mixed elements between taxation and social insurance. For instance, in Italy, health care is financed 52% by social insurance and 48% by taxation with mainly public providers. Health care in Canada is also financed by mainly taxation with mainly private providers. That is, Canada has a separate structure: finance from taxation and medical care delivery from private providers.

Figure 1. Classification of Health Care System.

	Taxation	Social Insurance	Private Insurance	Direct Individual Payments (out of pocket)
GERMNY	- General taxes to fund public health care	- Income related insurance premiums for statutory sickness funds. Contributions proportional to earnings subject to a ceiling with varying contribution rates across funds. The employer pays half and the employee pays half (i.e., the US Medicare Part A).	- Alternative cover for individuals opting out of or not eligible to join the statutory sickness fund system. Supplementary cover special hospital services (e.g., treatment by chief physicians, accommodation in single bed or two bed rooms)	- Co-payments for dental care, opticians, drug prescriptions and some medical devices (e.g., eye glasses, hearing aids) - No charge for ambulatory and inpatient care
SWEDEN	- Most tax revenues used to fund health care are from county council income tax. This is fixed proportion of income, but rates vary across counties. - Publicly Managed Program by county councils	- Earmarked contributions for health insurance, some of which goes towards health care.	- Very little	- User charges for ambulatory care, inpatient care, medicines and dental care. Extent of user charges has increased in recent years.
US	- Federal and state general revenues used to fund Medicaid and some Medicare (Medicare Part B). Some state and local revenues used to support public hospitals. - Government managed Program (Financing from government but provision from private providers)	- Some payroll taxes go towards funding of Medicare (Medicare Part A for Hospital Insurance Trust Fund) - Government Managed Program(Financing from government but provision from private providers)	- Provided mostly as fringe benefit to employees. Participants in Medicare also purchase supplementary cover. - Employer based insurance program (financing from employers and provision from private providers)	- Copayment for inpatient and primary care payable by the privately insured and Medicare enrollees.

Figure 2. Health Care Financing and Provision in Three Countries.

health service (i.e., National Institute Health of the UK or socialized medical system).

The method of financing health care and the degree of public and private provision for health care varies in the three countries (see Figure 2). Unlike the US, Germany and Sweden mainly rely on a non-market approach to constrain total health care expenditures, and emphasize mandatory participation.[1] In Sweden, the taxes are earmarked for

1) Other countries also pursue various non-market approaches (White, 1995; Jacobs, 1998). For instance, Canada allows provincial governments to make financing decisions under a strict set of federal guidelines, rather than use the central government as the locus of power. In contrast to the US, the Canadian federal government explicitly discourages the use of consumer demand as a means of establishing budget constraint and rationing health services. Canada funds its national health insurance through a revenue sharing program between the federal and provincial governments. The federal government gives each province a fixed amount of revenue for health care, which on average, finances 40% of the province's health care costs. Any additional amount comes from provincial tax revenues. Second, Japan finance their national health insurance through a combination of public and private nonprofit health insurance plans called sickness funds. Japan relies on the supply

health care spending, are largely local income taxes whose main purpose is to raise revenues for health care. In the US, Medicaid and Medicare Part B mainly rely on government revenues. In Germany, social insurance is the main form of contribution to sickness funds. In Sweden some of the health insurance contributions are used to finance health care. In the US Medicare Part A relies on the social security scheme. In the US, private insurance plays a dominant role for employer sponsored insurance, in Sweden it is very limited and in Germany, it provides coverage to persons outside the public sickness fund scheme. User charges play an important role in all three countries and most particularly in the US, although in Germany user fees are not used for primary care, specialists care or inpatient care (see Figure 2).

Unlike the US with market dominant systems, Nordic countries have relied on general taxation and government planning. Central European countries have relied on mandatory payroll premiums and a mix of public and private arrangements for delivery of health care. These non-market approaches regard health care as a right - health services are necessity to maintain life and relieve suffering. The approaches seriously weigh sources of market failures (e.g., asymmetric information, adverse selection, and moral hazards) that the presence of health insurance generates.[2] Thus, the non-market advocators emphasize placing fiscal power in the hands of public or quasi-public agencies, which bargain rather than use the flawed market to determine a total budget constraint for health care. Under this non-market approach, government plays an important role in both allocating resources and health care programs to regions and in setting payment rates for providers. The Appendix provides the whole picture of health care system in these three countries.

side approach to control health care costs. Rather than develop an explicit global budget, Japan uses its pricing structure to control health care costs. Prices are set with a global budget in mind. Administrative measures and peer pressure are subsequently used to limit the volume of tests ordered and drugs prescribed. Third, the UK uses the central government's budgetary process to limit total health expenditures by forcing health care expenditure to compete with other conflicting claims on total tax revenues. Like the provincial government in Canada, the central government in the UK finances health care and determines the amount to be spent by weighing the benefits of health expenditures against the merits of other claims on total tax revenues. Subsequently, the government either provides health services directly through the public sector. The UK promotes equal access to health care and makes health services available through the public provision of services that financed from general revenues.

The US Health Care System

The American entrepreneurial[3] and pluralistic character is unique because of its extensive reliance on consumer demand and market competition. It is the most expensive of health care systems (OECD, 1998), but the number of uninsured people continues to increase reaching , in 1997, 43.4 million people (i.e., 16.1 percent of the population) (Bureau of the Census, 1998).

The US health care system is funded by three main actors: employers, government, and individuals.

First, private employers and employees are the most important purchasers of health care through the insurance premiums they pay together for coverage.[4] The US government encourages em-

2) For instance, insurance tends to reduce both the consumers' and the providers' sensitivity to price or cost (i.e., the third party payment problem). The propensity of high-risk individuals is more likely to buy insurance (i.e., adverse selection). A disparity between the amount of information that a physician has and what patients have leads to physicians' strong professional dominance over medical and set prices (i.e., information asymmetry).

3) Although Switzerland bears the closest resemblance to the United States, it has a national health program with government regulations to ensure that about 99 percent of its population has some form of health insurance.

4) The premiums that finance coverage are paid in part by

ployers to provide coverage to workers by exempting insurance premiums from federal and state income taxes. The exclusion from income taxes and Social Security payroll deductions creates a substantial tax subsidy for employment-based insurance.

Second, relying on government revenues from federal and state, Medicaid provides health care for those below the state poverty level as well as acute and long term care services for low income aged, blind, and disabled. Medicare provides support for people over 65 years of age, the disabled and those with end-stage renal disease. Medicare is funded from four different sources: mandatory contributions by employers and employees for Medicare Part A, general tax revenues for Medicare Part B, beneficiaries' premiums, and deductibles and co-payments by Medicare beneficiaries (for supplemental health insurance).

Third, individual contribution includes expenditures for required coinsurance and deductibles and direct payments for services not covered by a third party. In general, out-of-pocket payments are still considerably less at an HMO than with indemnity insurance. However, most HMOs enrollees have had increased cost-sharing requirements in the past few years, as employer and health plan managers have sought to further constrain spending. Overall, the US shows a decline in per capita out-of-pocket spending, but this masks the financial difficulties of many poor people and families.[5)]

The US market-oriented approach regards health care as a commodity (rather than a right), emphasizing voluntary participation. This approach assumes that consumers can exercise control over what services to buy and at what price. It also believes that market competition maximizes consumers' welfare and provides efficient health care services. Since the late 1970s, the US has followed a pro-competition strategy. However, consumer sovereignty and simple market competition in the US has not resulted in efficient production and allocation of health care resources. It is still unclear whether these managed strategies can guarantee an efficiency of health care production.

The German Health Care System

The German health care system, like the Canadian, is a national health insurance system within the decentralized structure of federalism. Federal law mandates coverage and contribution levels, but associations of physicians contract with sickness funds at the Lander (i.e., German federal states) and local levels. Germany has a strong tradition of self-governance for sickness funds because of the decentralization to the Lander level and many sickness funds. The sickness funds are self-governing, self-sustaining, and self-financing institutions. Every sickness fund has its own elected board of directors and determines its own contribution rate. Hospital physicians are salaried and almost all hospitals are publicly owned by the Lander. About 90 percent of Germans are insured by one of about 1300 sickness funds (Jost, 1998). By law, the sickness funds are financed by income related contribution such as a separate tax. Half of the contributions are paid by the employers, the other half by the employees. The rest, who earn

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the employee through the explicit deduction of regular amounts from the employee's gross wages. The reminder (usually 80% or more) is paid by employers and not deducted from the employee's pay (Inglehart, 1999).

5) A recent study estimated that Medicare beneficiaries over 65 with incomes below the federal poverty level (in 1997 the level was $ 7,755 for individuals and $9,780 for couples) who were also eligible for Medicaid assistance which usually covers the monthly Medicare Part B premium, still spent 35 percent of their incomes on out-of-pocket health care costs. Medicare beneficiaries with income below the federal poverty level who did not receive Medicaid assistance spent, on average, half their incomes on out-of-pocket health care costs (Gross, 1997).

more than a relatively high-income threshold, can choose to purchase private health insurance. That is, only the self-employed and employees may opt out of the mandatory health insurance system to join a private health insurers.

The German system is heavily regulated in ways that seldom encourage competition (Jackson, 1997). Everything is predetermined by law, and the overall expenditures for ambulatory care physicians are budgeted. Under this financial system, the government uses extensive regulations to control health insurance. Such regulatory measures include mandating universal coverage, regulating risk selection, and specifying a minimum benefit standard. Furthermore, representatives of payers and providers negotiate a total budget with a single channel for paying providers. Germany imposes budget constraints on health care expenditures.[6] A national council composed of representatives from all major stakeholders in the health care sector provides policy guidelines for the states. In each state, a global budget for health care is decided after negotiations between providers and payers. Although health care administration across sickness funds is decentralized, there is a certain national uniformity in coverage, contributions and the decision-making and negotiation processes.

The Swedish Health Care System

The traditional strength of Sweden's health care organization is that it is publicly and locally owned, financed, and controlled. Although medical expenses rose in the early 1980s, cost containment programs seem to have controlled this without sacrificing quality. The Swedish health care system has historically relied on planning and coordination as a substitute for market mechanisms under a fundamental principle that all citizens should have, as a matter of right, equal access to care regardless of their ability to pay. The Swedish health care system was an integrated system where the local authorities (i.e., the county councils) control both the funding and the provision of health care services before the 1980s. Paying for health care is the responsibility for the local government. Each county council[7] owns and runs their hospitals. That is, health care has been the sole responsibility of the county councils. However, because of this decentralized structure unlike National Institute of Health of the United Kingdom, the central government had difficulty controlling cost. The county councils could expand health care without considering the effects on the total economy. After 1985, the central government has attempted to review the efficiency, financing, and organization of the system in the county councils.

Sweden has pursued the strong state intervention to exercise greater political control and more public funding into health care system.[8] The internal allocation of resources has traditionally been based on budgets where providers receive an annual grant to cover all their services. State pays for outpatient care from private practitioners and district phy-

6) When the payroll tax threatens a raise, sickness funds and the Ministry of Health have powerful incentives to restrain overall spending, especially in periods of economic recession. The Blum reform of 1989 and the Seehofer reform of 1992 were responses to such conditions (see Wilsford, 1995).

7) The county councils were established in the 1960s, mainly to operate hospitals for somatic illnesses. The county councils have the power to levy a proportional income tax on their populations (Rehnberg, 1995).

8) Public funding for ambulatory care in Sweden first appeared at the end of eighteenth century. Hospital care was gradually financed by taxes in the later part of the nineteenth century. Public funding of health care was extended gradually in Sweden after World War II. Hospital inpatient care was financed mainly by local government taxes, whereas outpatient care and prescribed pharmaceuticals were subsidized through the national health insurance plan developed in 1955. Direct out of pocket payment was further reduced by the Seven Crowns Reform in 1970 and by the extension of national health insurance to include dentists and physicians in whole-time private practice in 1974 and 1975 respectively (Rehnberg, 1995).

sicians. The central government finances and manages mental hospitals. During the last 30 years, several areas of responsibility have been transferred from the central government to the current 26 county councils. The financing and delivery of health care services is supplied by the independent county councils, including some independent municipalities in a monopolistic integrated system where most facilities are owned as well as managed by the county councils. Thus, the county council has been transformed into a monopoly supplier of health care as well as a monopsonist. Private providers account for less than 10 percent of total delivery. Financing from the national Social Insurance System is used to pay for private health care.[9]

AN ANALYSIS OF PERFORMANCE OF HEALTH CARE PROVISION

Access (Insurance Coverage)

The accessibility of health care should be considered as a value in itself. The degree of access to health care can be evaluated by various factors such as health insurance coverage, the number of patient visits per capita, and hospital admission rate. This section will focuses on insurance coverage.

The obvious difference between health care provision in the US and other developed countries is that the American system does not guarantee care to all Americans. Most developed countries have as little as one percent of the population uninsured, while a great number of Americans remain without health insurance at any given time.

In Sweden, public programs in health sector cover all medical services. The universalism in Sweden originated from the traditional ideology that health is a basic human right - equal access for equal need.[10] It follows, then, that resources for health should be organized equitably. Table 1 shows that medical services are fully covered in Sweden[11] and more then 90 percent covered in Germany.[12] Public health programs in the US, however, cover less than 50% of inpatient and ambulatory patients and less then 20% of pharmaceutical care (see Table 1).

Unlike Sweden, Germany and the United States are two developed countries that do not have universal health care coverage.[13] They both heavily rely on employer -based health insurance; however, the US has over 40 million uninsured people[14] while virtually every German has com-

9) In Sweden, financing from the national Social Insurance System is used to pay for private health care. Private practitioners and dentists receive approximately 75 and 60 percent, respectively, of their revenues through the Social Insurance System. Private physicians account for 20 percent of all physician visits and private dentists for 50 percent of all dental treatments (Gertham, 1999).

10) No socioeconomic differences were found in the proportion that had visited a doctor. Studies from the 1960s before the reduction of user fees in a major health policy reform found greater use of the health service among high-income groups (Gertham, 1999).

11) Pharmacies in Sweden are government owned and the cost of drugs is subsidized. Long-term care facilities and medical home services are run by the county councils whereas services for the elderly are run by smaller communities with an average of 30 000 inhabitants and their own elected government and taxation rights. These communities may acquire some responsibility for elderly patients, medical home services and possibly other areas of primary health care (Kirkman-Liff, 1996).

12) About 10 percent of upper income earners in Germany obtain health insurance through private health schemes. Less than one percent of the population is uninsured (Jackson, 1997).

13) Since 1970, Australia, Canada, France, Japan, New Zealand, and the UK have legislatively guaranteed universal health insurance coverage.

14) In the United States, only 32.9 percent of the population who are covered by Medicare, Medicaid, the Indian Health Service, government civil service, or the military had government-insured health coverage in 1995. In 1998, an estimated 44.3 million people (16.3% of the population) were without health insurance coverage (US Census Bureau, 1999). The number of uninsured children under 18 years of age was 11.1 million or

Table 1. Medical Coverage by Public Programs* (% of Population)

	1965	1970	1975	1980	1985	1990	1995
Germany							
Total Medical Care	85.8	88.0	90.3	91.0	92.2	92.2	92.2
- Inpatient Care	85.8	88.2	90.3	91.0	92.2	92.2	92.2
- Ambulatory Care	85.8	88.2	90.3	90.3	92.2	92.2	92.2
- Pharmaceutical Care	85.8	88.2	90.3	90.3	92.2	92.2	92.2
Sweden							
Total Medical Care	100.0	100.0	100.0	100.0	100.0	100.0	100.0
- Inpatient Care	100.0	100.0	100.0	100.0	100.0	100.0	100.0
- Ambulatory Care	100.0	100.0	100.0	100.0	100.0	100.0	100.0
- Pharmaceutical Care	100.0	100.0	100.0	100.0	100.0	100.0	100.0
U.S. (Medicaid + Medicare)							
Total Medical Care	25.0	40.0	40.0	42.0	43.0	44.0	45.0
- Inpatient Care	22.0	40.0	40.0	42.0	43.0	44.0	46.0
- Ambulatory Care	25.0	40.0	40.0	42.0	43.0	44.0	45.0
- Pharmaceutical Care	5.0	9.0	10.0	10.0	10.0	12.0	12.0

Note: The percentage of population means "share of population covered by social health protection programs". The share of the population is the population eligible for medical goods and services that are included in total public health care expenditure. Coverage in the sense of this index is therefore independent of the scope of cost sharing. According to this definition every person eligible for medical goods and services would be reported under total public health care expenditure and covered for (total) medical care.

* The US coverage consists of two public programs: Medicaid and Medicare. Sources: OECD. *OECD Health Data 98*, Paris, 1998.

prehensive health insurance. This results from the US employed based health insurance being optional, while the German employer- based health insurance is mandatory for those below middle income.[15] Neither the wage nor the size of a German firm has any bearing on whether employees can participate in an employer-based health care plan. However, the US employer coverage is strongly related to an employee's income and the size of the company.[16]

Many health systems of Western Europe are welfare oriented. This approach is connected to the insurance coverage. The health care system of Germany has mobilized economic support to make health care available to most people. It is especially pertinent in terms of its example for health care reform in the United States.

15.4% of all US children. Approximately, one third of all poor people had no health insurance and about one half of poor full time workers were also uninsured.

15) All German workers who earn less than $ 40,000 per year in the former western zone or $ 34,500 per year in the former eastern zone are required under the social code to be insured by the social insurance funds.

16) At the highest income levels and in the largest firms, about 90 percent of employees have coverage through their employers. Smaller firms and lower wage earners are much less likely to have insurance. Firm size affects the employer's decision to provide insurance because the cost of marketing and administrating insurance per employee goes down as the number of employees increases, so insurance companies charge much higher overhead rate per beneficiary. Wage level is an even greater factor. For small firms that pay low wages, the cost of health insurance is a much larger proportion cost than for larger firms. For instance, coverage that costs an employer $ 5,000 per employee is a much larger proportion of total expenses for an employer whose employees earn 20,000 than for employees who earn $40,000. See Kuttner (1999).

Cost

The US spends more on health care than any other nation in terms of total health care expenditure per capita and a proportion of gross domestic product. In 1995, the US per capita health care expenditures of $ 3,767 were more than double the OECD median of $ 1,616 and 75 percent greater than Germany's $ 2,128 (see Table 2). In contrast, in 1995 Sweden successfully kept per capita health care costs below the OECD median. That makes Swedish system only half as expensive as the US system. Sweden has one of the most vigorous cost-containment programs among OECD member countries. In Sweden, health care as a percentage of GDP has decreased from 9.5% in 1985 to 8.5% in 1995; in Germany the decline is from 9.3% in 1985 to 10.4% in 1995, while in the US costs have risen from 10.6% in 1985 to 13.6% in 1995 (see Table 2).

Meanwhile, it should be noted that an annual increase of health care expenditure as a percentage of GDP has been almost constant in all three countries since the 1990s, although the US health

Table 2. Health Care Expenditure in Germany, Sweden and the U.S.

	1965	1970	1975	1980	1985	1990	1995
Germany							
Total Expenditure							
- Per Capita ($ PPPS)	97	175	375	649	979	1279	2128
-% of GDP	4.6	6.3	8.8	8.8	9.3	8.7	10.4
Public Expenditure							
- Per Capita ($ PPPS)	69	127	297	511	759	975	1664
-% of GDP	3.2	4.6	7.0	7.0	7.2	6.7	8.1
The Percentage of Public Expenditure on Health	70.8	72.8	79.1	78.7	77.5	76.2	78.2
Sweden							
Total Expenditure							
- Per Capita ($ PPPS)	145	270	465	850	1172	1492	1590
-% of GDP	5.5	7.1	7.9	9.4	9.0	8.8	8.5
Public Expenditure							
- Per Capita ($ PPPS)	115	233	419	786	1059	1341	1325
-% of GDP	4.4	6.1	7.1	8.7	8.1	7.9	7.1
The Percentage of Public Expenditure on Health	79.5	86.0	90.2	92.5	90.4	89.9	83.4
U.S.							
Total Expenditure							
- Per Capita ($ PPPS)	212	357	605	1086	1798	2799	3767
-% of GDP	5.9	7.3	8.2	9.1	10.6	12.6	13.6
Public Expenditure							
- Per Capita ($ PPPS)	53	135	255	460	731	1138	1730
-% of GDP	1.5	2.7	3.5	3.9	4.3	5.1	6.3
The Percentage of Public Expenditure on Health	25.0	37.8	42.1	42.4	40.6	40.7	45.9
OECD Median							
Total Expenditure							
- Per Capita ($ PPPS)	95	154	310	579	881	1285	1616
-% of GDP	4.4	5.2	6.4	6.7	7.2	7.2	7.6
Public Expenditure							
- Per Capita ($ PPPS)	66	121	251	460	706	970	1212
-% of GDP	3.1	3.9	5.0	5.3	5.5	5.7	5.8
The Percentage of Public Expenditure on Health	70.5	74.2	77.2	79.5	77.1	76.2	76.7

Sources: OECD. *OECD Health Data 98*, Paris, 1998.

Table 3. Economy and Health Expenditure

Year	GDP Per capita ($PPS)			Total health care expenditure (Per capita: $PPS)			Total health care expenditure (% of GDP)		
	Germany	Sweden	U.S.	Germany	Sweden	U.S.	Germany	Sweden	U.S.
1980	7,343	9,064	11,896	649	850	1,086	8.8	9.4	9.1
1981	8,122	9,988	13,216	746	949	1,248	9.2	9.5	9.4
1982	8,590	10,685	13,605	784	1,029	1,391	9.1	9.6	10.2
1983	9,167	11,357	14,566	829	1,083	1,516	9.0	9.5	10.4
1984	9,908	12,356	16,020	903	1,153	1,650	9.1	9.3	10.3
1985	10,526	13,022	16,976	979	1,172	1,798	9.3	9.0	10.6
1986	11,063	13,603	17,736	1,014	1,189	1,917	9.2	8.7	10.8
1987	11,642	14,459	18,649	1,072	1,271	2,061	9.2	8.8	11.1
1988	12,480	15,273	19,912	1,172	1,332	2,287	9.4	8.7	11.5
1989	13,400	16,216	21,270	1,182	1,422	2,521	8.8	8.8	11.9
1990	14,626	17,011	22,224	1,279	1,492	2,799	8.7	8.8	12.6
1991	17,070	16,898	22,600	1,603	1,462	3,035	9.4	8.7	13.4
1992	18,453	16,908	23,600	1,834	1,496	3,276	9.9	8.8	13.9
1993	18,558	16,824	24,551	1,847	1,504	3,486	10.0	8.9	14.1
1994	19,747	17,543	25,764	1,982	1,533	3,620	10.0	8.7	13.6
1995	20,466	18,727	26,711	2,128	1,590	3,767	10.4	8.5	13.6
1996	21,622	19,419	27,821	2,278	1,675	3,898	10.5	8.6	13.6
1997	22,385	20,150	29,195	2,339	1,728	4,090	10.4	8.6	13.6

Sources: OECD. *OECD Health Data 98*, Paris, 1998.

care spending is still the highest of the three (see Table 3 and Figure 3). It appears that health care spending in Sweden is more effectively controlled than in the other two countries. The difference in health spending between Germany and Sweden both a percentage of GDP and per capita was small before the 1990s, but Germany has shown distinctively higher levels spending since then.

Since the 1990s, all three countries appear successful in controlling health care costs. However, they have adapted different approaches. For example, Sweden relies on planning system within global budget constraints. Such measures include wage freezes, and budget cuts for health care equipment and buildings. Germany relies on collective bargaining and gravitates toward the high socialization high coordinated payment. Another aspect of Germany's greater success is related to hospital doctors being salaried, which eliminate most incentives for doctors to prescribe expensive inpatient treatments (see White, 1995). In addition, German hospitals have less high-technology equipment partly because expensive technology is concentrated in teaching hospitals than in the US. This centralized system for capital expenditures allows control of technology diffusion.[17]

In contrast, the US more relies on market solutions than do Germany and Sweden. However, it is unclear whether managed competition reduces health care costs.[18] Despite considerable recent

17) For example in Germany, 40 centers perform open-heart surgery and 179 centers perform catheterization. In Germany in 1990, they were 33 coronary artery bypass graft procedures, 255 catheterizations, and 14.4 angioplasties per 100,000 population, compared with 142 coronary artery bypass graft procedures, 374 catheterizations, and 85 angioplasties per 100 000 population in the United States (Jackson, 1997).

18) Health care spending in the US consumed 13.5 percent of GDP in 1997, which was a slight drop from the

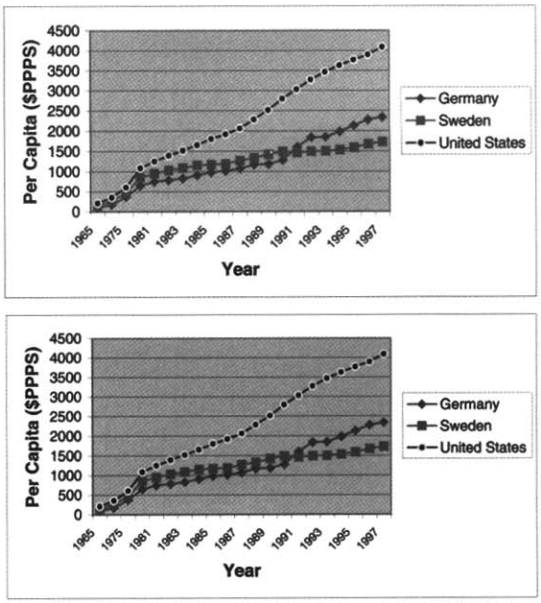

Figure 3. Trends in Total Health Expenditure.

change in the health care sector, American per capita health care grew at about the median rate for industrialized nations.

Quality

It is difficult to measure the quality of medical care because of its definition and measurement problem. There is no consensus on what objective measures should be used to evaluate quality. It appears that the quality of care is closely related to critical health policy issues such as costs and access. Furthermore, quality is related to effectiveness, efficiency and equity of service. There are, however, no unified theories to show how such elements as efficiency and equity influence the quality. Problems of definition and lack of credible theories tend to force researchers to rely on the subjective measure such as public satisfaction with health care services.

Starfield (1991) attempted to measure the quality of care, by relying on three elements: 1) primary health care services, 2) 12 statistical measures of national health care[19] and 3) the overall public satisfaction with the system. Her study shows that the Netherlands and Sweden were in the top third for all 12 indicators. West Germany was in the top third for one indicator (neonatal mortality rate), at the bottom third for seven indicators, and in the middle third for four indicator conditions (infant mortality, age adjusted mortality, potential years of life lost, and low birth weight).

In spite of per capita spending well in excess of other countries, the United States is ranked at the bottom of the list for all three dimensions. The US was in the top third of the distribution for only one indicator (life expectancy at 65 years for men) and in the bottom third for seven of the 12 indicators. This may result from the US being in the lowest third for central government expenditures on housing, social security, welfare and education. When social services and education are inadequate, access to primary care may mean little. In addition, specialty orientation and a poor primary health care system in the US may have a harmful impact on the health of the population.

It is also hypothesized that the heterogeneity of the US population accounts for low health scores. The American health care system certainly reduces the quality of care for those without insurance who are immigrants or minorities. This may have negative effects on the average national quality of health care. However, after several decades of

previous year (see Table 5). However, the Health Care Financing Administration recently projected that beginning in 1998, national health spending would again begin to grow faster than the rest of economy. Savings from managed care would be a one-time phenomenon, rather than a long- term trend (Iglehart, 1999).

19) The twelve indicators include neonatal mortality, post neonatal mortality, total infant mortality, age adjusted death rate, life expectancy at age 1 year for males and females, life expectancy at age 20 years for males and females separately, life expectancy at age 65 years for males and females separately, potential years of life lost, and low birth weight.

immigration to Sweden that has resulted in one of eight being born in another country has not appreciably affected Sweden's population health (Saltman, 1990). This difference may be because unlike the US Sweden provides immigrants with universal health insurance.

EVALUATION OF HEALTH CARE PROVISION

The US health care system is more expensive than Germany and Sweden but the number of uninsured in the US in 1997 was still at about 16 percent of the population. Unlike the US, both Germany and Sweden have universal systems with compulsory participation. These two European countries perform better than the US in respect to cost containment and health of the population. In these two countries, controls on capital investment limit the proliferation of expensive technology and the use of available technology yet the overall population health is better (see Table 4). In Germany and Sweden, government financing and the top-down health care delivery structure is criticized because it results in limiting patients' choice of provider and limits incentives for delivering underutilized services. There is no incentive to minimize costs, but it is relatively easy for government to control them.

The US Health Care System

The US market approach assumes that competition provides suppliers with incentives to act as an effective agent on behalf of their potential customers. The US market approach also assumes that consumers will be fully cost-conscious and

Table 4. Health Outcomes

		1965	1970	1975	1980	1985	1990	1995
Infant Mortality Rate (Deaths per 1000 live births)								
Germany		23.9	23.6	19.8	12.6	8.9	7.0	5.3
Sweden		13.3	11.0	8.6	78.8	6.9	6.8	4.1
U.S.		24.7	20.0	16.1	12.6	10.6	9.2	8.0
OECD Median		23.7	19.8	16.0	12.1	9.2	7.9	6.0
Life Expectancy at Birth								
Germany	Male	73.4	73.6	74.7	76.6	78.1	79.0	79.8
	Female	67.6	67.2	68.1	69.9	71.5	72.7	73.3
Sweden	Male	76.1	77.1	77.9	78.8	79.7	80.4	81.3
	Female	71.7	72.2	72.1	72.8	73.8	74.8	75.9
U.S.	Male	73.8	74.7	76.6	77.4	78.2	78.8	79.2
	Female	66.8	67.1	68.8	70.0	71.1	71.8	72.5
OECD Median	Male	73.4	74.2	76.1	77.4	78.2	78.9	80.1
	Female	67.5	68.1	69.0	70.1	71.4	72.4	73.5
Potential Years of Life Lost								
Germany	Male	7,795	6,968	5,663	4,590	3,922	3,644	3,408
	Female	12,292	11,446	9,604	8,302	7,107	6,846	6,697
Sweden	Male	5,199	4,585	4,198	3,714	3,402	3,150	2,775
	Female	7,838	7,390	7,227	6,585	5,770	5,271	4,504
U.S.	Male	8,314	7,698	6,503	5,715	5,095	4,817	4,666
	Female	13,899	13,479	11,623	10,300	9,050	8,791	8,519
OECD Median	Male	7,392	6,961	5,850	4,839	4,264	3,668	3,306
	Female	11,790	11,227	10,283	8,681	7,494	6,881	6,401

Source: OECD Health Data 1998

will generally enjoy a choice of providers, even though consumer sovereignty or effective competition may not prevail due to the asymmetry of knowledge between physicians and patients.

However, the US market-oriented approach has generated serious problems in terms of efficiency and equity. The health care market's achievements in micro- and macro efficiency in the US are doubtful because of market failures. Micro efficiency is problematic because of asymmetric information between insurance companies and consumers which creates an adverse selection of services by consumers and favorable selection for risks by insurers. It should be noted that competition does not automatically generate appropriate incentives. In competition among third party providers, a key problem arises from how to maintain access and prevent skimming (i.e., favorable selection of profitable consumers). These negative factors tend to increase administrative costs and government regulations. In addition, asymmetric information between physicians and patients can generate agency costs when physicians act as imperfect agents (e.g., supplier inducement demand). It is suggested, therefore, that a competitive market for third party providers should be complemented with a mechanism to guarantee access and remove the incentives for skimming.

The US health care provision also shows poor performance with respect to macro efficiency. Health care expenditures per capita are lower in countries where non-market elements dominate than in the US with its market dominant approaches. National health care services have greater direct control over expenditures, more equitable and efficient allocation of resources, lower out-of-pocket expenses and lower administrative costs than social security systems. Anderson (1998) shows that despite the prevalence of managed care and government efforts to cut costs in the 1990s, per capita health care spending in the US grew faster than the average in industrialized countries. Even though it spends more on health care than any country in the world, the U.S. lags behind the other countries in access and financial security.

Second, the US health care provision is inconsistent with adequate or equitable care or income protection. Furthermore, the market-oriented model is little interested in access to health care independent of an individual's purchasing power, which has resulted in a large uninsured population. It appears that when compared with a universal healthcare system, the U.S. voluntary health insurance system is less likely to cover poor and more gravely ill people. For instance, an employer based insurance provision has greater adverse effects on employees[20] and families with lower incomes than on employers and those with higher incomes. A substantial income tax and Social Security payroll deduction provides little or no benefit to the uninsured. Furthermore, families with higher incomes benefit disproportionately because they are in higher tax brackets. The United States needs to move away from near total reliance on employer-based health insurance or at least significantly modify the current system.[21] In

20) In a recent book, the economist Mark Pauly (1997) asserted that higher medical costs do not harm employers or owners but do reduce wages for workers. This implies that the future increased medical costs will have greater adverse effects on employees than on employers.

21) Currently, persons employed with one firm may pay higher premiums for the same benefits than those employed elsewhere. Productivity is hampered because employees fear leaving their current job for a better one because they will lose health insurance. Furthermore, about 27 million Americans are employed in industries in which the average employment time is only 5 to 11 months. These industries find it difficult to provide health insurance, and many have never tried. Indeed, one study found that 57% of uninsured Americans are employed. The German system, although employer-based, is portable and mandatory, which allows workers to change jobs and even different sickness funds without penalty since all employers provide health insurance (see Kuttner, 1999).

addition, Medicare appears to be regressive because in Medicare the rich and the poor are treated the same; that is, premiums are not related to income. It appears that universal coverage can only be achieved by making participation mandatory. Voluntary participation with the risk selection problems cannot guarantee universal coverage for all Americans.

German Health Care System

Germans have a strong commitment to solidarity, which imposes an obligation on all participants to contribute to a system providing universal access.

In addition, it appears that Germany has controlled costs more effectively than the US and Canada, even with more generous benefits (White, 1995). Some aspects of Germany's greater success must be related to the salaried status of hospital doctors. This concept lowers payments and eliminates incentives for doctors to prescribe expensive inpatient treatments unless a patient has private insurance.

However, the German health care system has several significant problems (Jackson, 1997; Jost, 1998). First, the German system provides little incentive for competition. Sickness funds are geographically or occupationally located and do not compete with another because of the mandated benefit package and low administrative costs. Physicians are used to working in consensus and negotiating reimbursement mechanisms as a group. Switching to a competitive system would be difficult. The lack of emphasis on measuring outcome also makes it difficult to assess the cost-benefit ratio of certain types of care. Thus, current cost controls, effective when resources were adequate to provide a minimal level of care, may not work in the face of increased future demand. One possible solution is to strengthen market forces through the introduction of some form of managed care. However, Germany still lacks the major factors necessary for managed competition because the regulations[22] set by the government already limit competition among sickness funds and freedom for the sickness funds to control costs, prices and quantity of services.

Second, patients stay in German hospitals among the longest time of any European country, partly because of the inability of hospital physicians to provide follow-up care on discharge. German health care utilization rates are also among the highest in the world. Except for a small co-payment required for some services, there are no direct patient charges for ambulatory and inpatient care. Patients, therefore, have little idea of the real cost of their treatment and consequently little incentive to keep the costs down. The average German sees a physician 11 times annually, compared with 5.5 annual visits in the United States.

22) The Germany legal institutions that govern the health care provision largely blocks market driven changes (Jackson, 1997). Managed care along a vertical integration model would restrict patient access to physicians, but this restriction violates the basic free access principle. Germans seem to believe that they have a statutory right of free choice and react vigorously to an insurer's attempt to limit this right. Thus, gatekeeper experiments currently depend on the consent of participating insured persons. Technically, the law in Germany permits a gatekeeper model but this law has not been implemented, apparently because the sickness funds fear consumer reaction. The German data protection laws also severely limit the ability of the health insurance plans to function as case managers because they forbid the funds from accessing the personal medical information they need to manage patient care. The sickness funds do not have general access to patient-specific, ambulatory care diagnostic information. Two further major weaknesses of managed plans based on market competition are obstacles to selecting the plan. Managed care can encourage risk selection and limit access to care and ultimately the solidarity principle that lies at the heart of the German social insurance system. It is also not clear that managed care would be any more effective than fixed budgets are in holding the line on costs. Managed care tends to generate higher administrative costs than does the fixed budget system. For instance, German administrative costs averaged 4.4% of total costs in 1986, compared with 19% to 24% in the United States (White, 1995).

Finally, historically there is almost complete separation between ambulatory and hospital services. Hospital care physicians are not allowed to provide outpatient care and ambulatory care physicians cannot admit patients. Thus, little communication has existed between these groups, with admitting physicians duplicating the tests obtained by the ambulatory care physicians.

Swedish Health Care System

The principles of fairness and equity are strongly ingrained in Swedish health care policy. Factors such as age, income, or residency do not become the basis for discrimination (Garpenby, 1995). There is general agreement that financing health care should be based on ability to pay regardless of individual health risk. Providers (the county councils) are granted a monopoly position so that they can take advantage of large-scale production and avoid wasteful duplication. Sweden is one of few developed countries that effectively controls health care costs.

However, the Swedish health care system is criticized because of the absence of competition in the publicly owned and managed health care system (Rehnberg, 1995; Gerdtham, 1999). Swedish health care services have also been deficient with respect to consumer choice.

Health care that is organized based on geography and individual responsibility provides limited opportunities for patients to influence their personal situations.[23] Public providers have not been subject to much competition. The system is monolithic with all county councils delivering care in a similar fashion. The county councils have only contracted outside the public sector to a limited extent. Several studies showed lower productivity in public providers than in private providers.[24] Furthermore, resources were distributed across geographical areas in a manner that was poorly related to needs, perhaps in response to the interest of existing providers. The absence of incentives for cost effectiveness might explain the inability to redistribute resources. The misdistribution and inefficiencies may have contributed to deficiencies such as a long wait for surgical procedures in many locations. In addition, the lack of consumer choice became a political issue.

In the early 1990s, Sweden experienced a large

23) Citizens are taxed according to the county in which they live and cannot opt out of the system. Unlike patients in many other countries, Swedish patients can visit a hospital clinic without a referral from their primary care physician, but they have little say in the choice of physician or clinic. However, the Family Doctor Reform allowed several county councils give patients the right to choose primary care provider. Patient could choose from among public and private physicians and hospital clinics. However, the choice is not completely free because it is limited by the contracts signed by purchasing units. Some county councils have agreements that allow patients to obtain care across county boundaries.

24) One recent study (Gerdtham, 1999) examines the effect of the internal market with output-based reimbursement on the efficiency of hospital care, by comparing county councils who changed their internal resource allocation system into a comprehensive system of internal markets with those still relying on the traditional budget system. The study showed that county councils with the new output-based reimbursement system had significantly higher efficiency scores than those with the traditional budget system. This study also suggested that county councils with a non-socialist political majority are relatively more efficient than those with socialist county councils. Large county councils are more efficient than small county councils. However, these findings are controversial due to other confounding factors. It must be considered that other initiatives and other reforms have also been introduced during this period (e.g. reform in the care of the elderly and the maximum waiting time guarantee). These reforms were simultaneously implemented nationally but do not explain the differences between the county councils. Furthermore, another study shows that the efficiency in the hospital sector before reform did not differ between county councils who implemented internal markets with output-based reimbursement and those who did not (Rehnberg, 1997). Thus, there is no clear evidence which system is more efficient.

budget deficit and negative economic growth. Concerns about both consumer choice and efficiency in the provision of health care service put the privatization of medical care high on the national priority list. Proponents of market solutions criticize the organization of the health care service as too centrist, inert and bureaucratic. Issues in the movement toward market mechanisms in public health care included collective purchasing units, consumer freedom of choice, provider competition, contracts and performance-based reimbursement, and provider autonomy. However, this market-oriented reform (i.e., internal market or quasi market) differs in several aspects from a conventional competitive market. Prices are still centrally regulated and controlled in most county councils, and tax financing of health care is retained. A form of managed competition consistent with conventional market includes considerable autonomy for providers, a change from the budget process to contract structure and increased freedom for the consumer to choose provider.

Overall, the quasi market can be described as regulated competition among public providers. The competition has focused on accessibility and quality of the service provided. This form of non-price competition has created an incentive for providers to become more consumer satisfaction sensitive. Such new contracts as the block contract and the performance-related contract appear to influence provider behavior and to reduce the waiting times for surgical procedures.[25] In short, accessibility has been improved and waiting lists have been reduced, probably due to the introduction of the internal market. However, it appears that provider autonomy[26] and competition[27] among providers do not have favorable results for the internal market. It is too early to determine the extent to which the introduction of competition and performance-related reimbursement has changed provider behavior, reduced the cost of health care services and improved the quality of care. However, it appears that policymakers later discovered that introducing market forces did not solve the inherent problems and that equitable health care for all should remain a long-term goal. Sweden has recently reverted its health care reform focus to a more equitable and cooperative system after its experiment with marketplace competition.

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25) In the block contract, the purchaser pays a yearly sum in return for access to a defined range of services. In 1992 the Federation of County Councils and the central government initiated the block contract based on performance targets such as waiting lists for a defined set of surgical procedures. The performance -related contract is mainly used for surgical specialties. Some county councils use the Diagnosis Related Group classification, where as others use measures such as admissions and visits. However, for the block contract, both provider and purchaser are placed at risk due to asymmetric information. The purchaser (county council) has a limited opportunity to monitor output and outcome of services, while the provider risks unexpected increased cost due to uncertain utilization patterns. The drawbacks of the performance-related contract include price uncertainty (since no market price exist) and the incentive to overuse. See Gardtham (1999).

26) The autonomy for providers is circumvented by the regulation regarding public ownership. For example, a decision to close a hospital or primary health center must be sanctioned by county politicians and in general large investments in facilities and equipment are controlled by regional political boards. Politicians have also disregarded the recommendations of hospital managers to lay off public employees during recessions. In this situation, it is difficult for providers to meet the conditions for a competitive market (see Garpenby, 1995).

27) All cities except the three largest ones have only one hospital. Considering also that Sweden is a sparsely populated country, it is not clear that a competitive market with a greater number of providers would be more allocate resources efficiently because the advantages of large-scale production like natural monopoly already exist.

CONCULSIONS: PUBLIC POLICIES FOR POPULATION HEALTH IN DEVELOPED COUNTRIES

The precise relative contribution to population health of medical and non-medical factors remains subject to reasonable debate and disagreement. In recent years, it has become increasingly clear that population health is largely determined by factors other than health care. Recent studies have focused on negative social, economic, behavioral dynamics effects as well as access to health care and health care outcomes. Recent studies about psychosocial factors and community levels (Kennedy et al., 1996; Wilkinson, 1996; Waitzman and Smith, 1998a; 1998b) particularly demonstrate that population health is related to income inequality, material deprivation, segregation (i.e., proportion of minority) and social relationships (i.e., social capital and social cohesion). In addition, there is the increasing evidence of the limits of modern medicine to improve individual and especially population health. However, medical coverage is still important to population health for the great numbers in the US are uninsured. This suggests for the US universal coverage and reducing poverty while it is suggests social policies for the reallocation of medical resources to the non-medical sector and income inequality in all three countries.

Universal Health Care Coverage

Medical care is necessary to support life, although it is often not a crucial factor in health outcomes. Universal health care coverage like other welfare provisions plays a fundamental role in reapportioning resources in society that have been inequitably distributed by the market. It is well known that the poor are unable to access the health care system as effectively as the wealthier (Waitzman and Smith, 1998a; 1998b).

Every advanced industrial country, with the lone exception of the United States, has found a way to guarantee decent health care to all its citizens. There are two ways to achieve systematic universal coverage: a broad-based general tax with implicit subsidies for the poor and the sick or a system of mandates with explicit subsidies based on income (e.g., community rating system). The former is preferred because the latter is expensive to administer and distorts incentives (Fuchs, 1996). For instance, community-rated insurance programs that are not linked to compulsory, universal coverage may result in coverage only for high-risk individuals, with resultant spiraling premiums.[28]

America already provides some successful stories from state experiences (Leichte, 1997; 1999; Paul-Shaheen, 1998). Despite this obstacle to universal health care coverage at the federal level, we find that during the past decade, state health care reforms have illustrated some positive aspects. We already know that Hawaii has had a successful experience with universal health care coverage.[29]

Reducing Poverty

Economists and sociologists have long argued over the significance and impact of relative or absolute deprivation on health. In the United Kingdom, evidence of the effects of poverty on

28) Certain states, such as New York and Vermont, have implemented a community rating system that will equalize health insurance costs for all groups. However, analysts believe that this may adversely affect low-risk groups because they will have to pay the same premiums as the high-risk groups (Leichter, 1997; Paul-Shaheen, 1998).

29) Since 1974 all employers and employees have been required to contribute to health insurance. It is simple, fully privatized, and it works well. Health care costs in Hawaii are 30 percent less than in California, and Hawaii is a state whose cost of living is perhaps exceeded only by that of Alaska's. Health outcomes in Hawaii are the best in America-the highest life expectancy and the lowest infant mortality (Paul-Shaheen, 1998).

health was first highlighted in the Black and the Health Divide Reports (Townsend and Davidson, 1982). These reports provide consistent evidence that those at the bottom of the economic ladder have a greater likelihood of suffering the ill effects of a wide range of diseases as well as having a greater likelihood of death at an early age. A recent US report (Health, United States, 1998: Socioeconomic Status and Health Chartbook) shows that the poor suffer higher rates illness from a range of diseases than the not so poor. Compounding the American problem is the increasing lack of health insurance by this same at-risk population.

Concentrated poverty was associated with significantly elevated risk of mortality, even after controlling for individual household income (Waitzman and Smith, 1998a; 1998b). Poorer people suffer not from poverty, but from relative deprivation. Higher concentrations of urban poverty are related to greater social isolation, higher levels of alcohol, and drug abuse, and other deleterious behavioral patterns (Wilson, 1987). Thus, poverty-area residence was associated with significantly elevated risk of all-cause mortality. Epidemiologists should attempt to eradicate poverty using their own epidemiological model. This appears to be more relevant to the US than to Germany and Sweden because America has a higher poverty rate than other developed countries.

Reducing Income Inequality

The relationship between income and health is well established: the higher an individual's income, the better his or her health. However, recent research suggests that health may also be affected by the distribution of income within society.[30] Inequality itself, they argue, is a killer, because it creates stress, a negative self-image and a sense of powerlessness (Wilkinson, 1996). The effects of income inequality on health may be mediated by an under-investment in social goods, such as public education and health care; disruption of social cohesion and the erosion of social capital; and the harmful psychosocial effects of invidious social comparisons (e.g., symptoms of disintegration). These symptoms of disintegration manifest themselves in many forms that range from increasing levels of illness and premature death to declines in civil commitment and participation, and community infrastructure. Recent studies (Broadhead et al., 1983; House et al., 1988) show that psychological factors such as stress, shame, depression, poor social support and pessimism make the body vulnerable to poor health, although the link between status and health is mediated by complex biological pathways that are not yet fully understood. The view that societies that are more egalitarian are healthier and have higher life expectancies appears to be more relevant in the US and the UK than in Germany and Sweden.

Reallocation from Health Care Expenditures to Non-Health Care Expenditures

The relationship between health care spending and population health seems to be weak. Previous studies[31] (Maxwell, 1981; Leu, 1986; Hitiris and Posnett, 1992) show no correlation[32] between

30) For instance, Kennedy et al. (1996) suggest that the greater the gap between rich and poor, the greater the chances that people will be sick and die young. Health is not determined by the absolute level of wealth in a society, but rather it is determined by the size of the gap between the rich and poor. States with greater inequality in income distribution also had higher rates of unemployment, higher rates of incarceration, a higher percentage of people receiving income assistance and food stamps, and a greater percentage of people without medical insurance. Again, the gap between rich and poor not the state's average income was the best predictor.

31) Leu (1986) fails to identify a relationship between medical care expenditures and lower mortality after controlling for per capita income. Hitris and Posnet (1992) also find little evidence of a relationship between health spending and mortality rates.

population health (e.g., life expectancy and infant mortality rate) and health care expenditures (e.g., health care spending per capita and a percentage of GDP). In contrast, one recent study (Cremieux et al. 1999) in Canada shows a significant relationship between health care spending and health outcomes.[33] However, it should be noted that this study also shows that non-medical factors have significant effects on population health.

Low expenditures in other social welfare areas (non-medical expenditures in social policies) appear to increase poverty and income inequality, especially in the US, which in turn has negative effects on population health.

In sum, previous studies show that the effect of health care spending on population health has been modest or decreased over time, while non-medical factors such as spending on education and welfare have become increasingly important for population health. In particular, the expensive health care system in the US appears to be a luxury for the rich with little marginal effect on population health. This implies that the US cannot adequately allocate resources to other health enhancing activities because of its excessive spending in health care sector, which ironically may actually be reducing the general health of the population.

Recent studies (e.g., White, 1995) show that the curative biomedical health care system, especially in the US, has consumed resources in excess of its demonstrated ability to produce health at an aggregate level. The opportunity costs associated with the excessive expenditures in health care imply that a reliance on the curative medical system actually harms public health. Therefore, more attention should be given to investment in non-medical areas such as community support, local economic development, and social welfare programs that also influence population health. For a wealthy society, marginal returns on per capita health care expenditure may be smaller than per capita social expenditures. In this sense, a certain level of relevant reallocations from health care spending to social spending can improve the functioning of the health care system. This hypothesis appears to be more relevant to the US than to Germany and Sweden.

32) Various explanations have been offered for the lack of a positive relationship between health expenditures and population health. First, health care expenditures are not necessarily related to high care needs such as life threatening situations or illness. Second, an increase in health care expenditures is related to suppliers' inducement demand (SID), which lowers the effectiveness of marginal health care spending because the SID usually exceeds an appropriate level of treatment and over-consumes medical resources. There is a clear relationship between number of physicians per 1000 in the population (or per capita income of physicians) and an increase of health spending, while there is no relationship between the number of physicians (or physician's income) and population health. Third, people in more developed countries lack the family and social networks that characterize earlier societies; they are more geographically mobile, more secular, and have fewer stable relationships. These factors are believed to generate psychologically based physical illnesses. However, medical spending is less effective for the social support that is necessary to treat these symptoms (Fox, 1977). Fourth, more health care leads to dependence, and this in turn leads to be a decline in health. In this view, more medical care can lead to poorer not better health (Illich, 1975).

33) Cremieux and his colleagues (1999) examined homogenous province specific Canadian data and show that lower health care spending is associated with an increase in infant mortality and a decrease in life expectancy. They criticized previous studies that failed to find a relationship between population health and health care spending because their international data was inherently heterogeneous despite econometric correction for heterosckedasticity and autocorrelation.

Bibliography

Non-Korean

Alterstetter, Christa and James Warner Bjorkman (ed.). 1997. *Health Policy Reform, National Variations and Globalization.* New York: St. Martin's Press in association with the Inter-

national Political Science Association.

Anderson, Gerard F. 1998. *Multinational Comparisons of Health Care: Expenditures, Coverage and Outcomes.* Center for Hospital Finance and Management. Johns Hopkins University.

Blendon R., R. Leitman, I. Morrison, and K. Denelan. 1990. Satisfaction with Health Systems in Ten Nations. *Health Affairs*. 9: 185~192.

Broadhead, W. E., Kaplan, B. H., and James, S. A. et al. 1983. The epidemiologic evidence for a relationship between social support and health. *American Journal of Epidemiology*. 117: 521~37.

Buchanan, Joan and Susan Marquis. 1999. Who gains and who loses with community rating for small business? *Inquiry*. 36(1): 30~32.

Bureau of the Census.1997, 1998. *Current population reports. Health insurance coverage, 1997 and 1998.* Washington DC: Government Printing Office.

Cremiux, Pierre-Yves, Pierre Ouellette and Caroline Pilon. 1999. Health Care Spending as Determinants of Health Outcomes. *Health Economics*. 8: 627~639.

Evans, Robert G., Morris L. Barer, and Theodore R. Marmor (eds.). 1994. *Why Are Some People Healthy and Others Not? The Determinants of Health of Populations.* Aldine De Gruyter: NY.

Field, M. G. 1980. The Health System and the Polity: A Contemporary American Dialectic. *Social Science and Medicine*. 14: 397~413.

Foster, P. 1996. Inequalities in health: what health systems can and cannot do. *Journal of Health Services Research and Policy*. 1(2): 179~182.

Fox, R. 1977. The medicalization and demedicalization of American society. *Daedalus*. 106: 9~22.

Fuchs, Victor. 1996. Economics, Values and Health Care Reform. *American Economic Review*. 86 (1): 1~24.

Garpenby, Peter. 1995. Health care reform in Sweden in the 1990s: local pluralism versus national coordination. (European Health Policies: Welfare States in a Market Era). *Journal of Health Politics, Policy and Law*. 20(3): 695~717

Gerdtham, U-G, C. Rehnberg, and M. Tambour. 1999. The impact of internal markets on health care efficiency: evidence from health care reforms in Sweden. *Applied Economics*. 31 (8): 935~955.

Glaser, William. 1993. Universal Health Insurance That Really Works: Foreign Lessons for the United States. *Journal of Health Politics, Policy and Law*. 18(3): 695~722.

Gross D. J., Gibson M. J., Caplan C. F. et al. 1997. *Out of pocket health spending by Medicare beneficiaries age 65 and older: 1997 projections.* Washington, DC. AARP Public Policy Institute.

Hitiris, T. and Posnett, J. 1992. The Determinants and Effects of Health Expenditures in Developed Countries. *Journal of Health Economics*. 11: 173~181.

House, J. S., K. R. Landis, and Umberson, D. 1988. Social relationships and health. *Science*. 241: 540~545.

Hsiao, W. 1992. Comparing health systems: What nations can learn from one another. *Journal of Health Politics, Policy and Law*. 17: 613~636.

Iglehart, John. 1999. The American Health Care System: Expenditures. *New England Journal of Medicine*. 340(1): 70~76.

_____. 1994. Health care reform: the states. *New England Journal of Medicine*. 330(1): 75~81.

_____. 1991. Germany's health care system. (Health policy report part 1) *New England Journal of Medicine*. 324(7)(February): 503~10.

Illich I. 1975. *Medical Nemesis. The Exploration of Health.* London: Calders & Bagars.

Jackson, Jeffrey L. 1997. The German health care system: lessons for reform in the United States. *Archives of Internal Medicine.* 157(2): 155~162.

Jacobs, Alan. 1998. Seeing difference: market health reform in Europe. *Journal of Health Politics, Policy and Law.* 23(1):1~33.

Jerome-Forget, Monique, Joseph White, and Joshua M. Wiener (ed.).1995. *Health Care Reform through Internal Market.* Brookings Institution: Washington DC.

Jost, Timothy. 1998. German Health Care Reform: The Next Steps. *Journal of Health Politics, Policy and Law.* 23(4): 697~711.

Kennedy B. P., I. Kawachi and D. Prothrow-Smith. 1996. Income Distribution and Mortality: Cross Sectional Ecological Study of the Robin Hood Index in the United States. *British Medical Journal.* 312: 1004~7.

Kirkman-Liff, Bradford L. 1996. Healthcare reform in the Netherlands, Israel, Germany England and Sweden. (Where Is Healthcare Headed?) *Generations.* 20(2): 65~72.

Kuttner, Robert. 1999. The American Health Care System: Employer-Sponsored Health Coverage. *New England Journal of Medicine.* 340(3): 248~252.

Leichte, Howard M. 1999. Oregon's bold experiment: whatever happened to rationing? *Journal of Health Politics, Policy and Law.* 24(1): 147~160.

Leichter, Howard M. 1997. *Health Policy Reform in America: Innovations from the States.* Armonk. N.Y: M.E. Sharpe.

Leu, R. E. 1986. The public-private mix and international health care costs. In: Culyer, A.J. and Jonsson, B.(eds.). *Public and Private Health Services.* Oxford: Basil Blackwell. pp. 41~63.

Mechanic, David. 1975. The Comparative Study of Health Care Delivery Systems. *Annual Review of Sociology.* 1: 43~65.

Mechanic, David and David Rochefort. 1996. Comparative medical systems: analysis of health care systems from around the world. *Annual Review of Sociology.* 22: 239~262.

OECD. 1992. *The Reform of Health Care Systems: A Comparative Analysis of Seven OECD Countries.* Health Policy Studies No 2. OECD. Paris.

OECD. 1994. *The Reform of Health Care Systems: A Review of Seventeen OECD Countries.* Health Policy Studies No 5. OECD. Paris.

OECD. *OECD Health Data 1998: a comparative analysis of 29 countries.* Paris: Organization for Economic Cooperation and Development, 1998 (CD-ROM).

Paul-Shaheen, Pamela A. 1998. The states and health care reform: the road traveled and lessons learned from seven that took the lead. *Journal of Health Politics, Policy and Law.* 23 (2): 319~336.

Pauly, Mark. 1997. *Health Benefits at Work: An Economic and Political Analysis of Employment Based Health Insurance.* Ann Arbor: University of Michigan Press.

Poland, Blake, David Coburn, Ann Robertson and Joan Eakin. 1998. Wealth, Equity, and Health Care: A Critique of a "Population Health" Perspective on the Determinants of Health. *Social Science and Medicine.* 46(7): 785~798.

Rehnberg, Clas. 1995. The Swedish Experience with Internal Markets. In Jerome-Forget, Monique, Joseph White, and Joshua M. Wiener (eds.). *Health Care Reform through Internal Markets.* Brookings Institution: Washington DC. pp. 49~73.

Reinhardt, Uwe. E. 1992. The United States: breakthroughs and waste. *Journal of Health Politics, Policy and Law.* 17(4): 637~666

Roemer, M. 1993. National health systems throughout the world. *Annual Review of Public Health.* 14: 335~353.

Sparrow, K. Malcolm. 1996. License to Steal: Why

Fraud Plagues America's Health Care System. *Social Science & Medicine.* 43(5): 637~656.

Starfield, Barbar. 1991. Primary Care and Health a Cross-National Comparison. *Journal of American Medical Association.* 266: 2268~2271.

Terris, M. 1978. The Three World Systems of Medical Care: Trends and Prospects. *American Journal of Public Health.* 68(11): 1125~31.

Townsend, P. and Davidson N. 1982. *Inequalities in health: the Black report.* Harmondsworth: Penguin.

Twaddle, Andrew. 1996. Health System Reforms-Toward a Framework for International Comparisons. *Social Science & Medicine.* 43(5): 637~654.

Van De Ven, Wynand. 1996. Market Oriented Health Care Reforms: Trends and Future Options. *Social Science and Medicine.* 43(5): 655~666.

Wagstaff, Adam et al. 1999. Equity in the finance of health care: some further international comparisons. *Journal of Health Economics.* 18: 263~290.

Waitzman, Norman J., and Ken R. Smith. 1998a. Separate but lethal: the effects of economic segregation on mortality in metropolitan America. *Milbank Quarterly.* 76(3): 341~375.

Waitzman, Norman J., and Ken R. Smith. 1998b. Phantom of the area: poverty-area residence and mortality in the United States. *American Journal of Public Health.* 88(6): 973~978.

White, Joseph. 1995. *Competing Solutions: American Health Care Proposals and International Experience.* Washington, D.C.: Brookings Institution.

Wilkinson, Richard G. 1996. *Unhealthy Societies: The Afflictions of Inequality.* London: Routledge.

Wilsford, David. 1995. State Facing Interests: Struggles over Health Care Policy in Advanced, Industrial Democracies. *Journal of Health Politics, Policy and Law.* 20(3): 571~613.

Wolfe, B. L. 1986. Health Status and Medical Expenditures: Is There a Link? *Social Science and Medicine.* 22: 993~999.